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- 1 1. (Amended) A method for dithering color in a graphics system that displays a group of
2 pixels and wherein the color of the pixels is represented by color shades having fewer than eight
3 bits, the method comprising the steps of:
- 4 (a) generating an eight bit color shade value for each pixel representing a desired color for
5 each pixel;
- 6 (b) truncating the desired eight bit color shade value to obtain a truncated color shade
7 value;
- 8 (c) generating a FRAC value for each pixel from the truncated bits of said eight bit color
9 shade value;
- 10 (d) producing a ramp value for each pixel using said FRAC value to select one from a
11 group of plurality of ramp values having different probabilities reflecting
12 proximity to the truncated color shade value, wherein said ramp value encodes a
13 discrepancy between the desired eight bit color shade value and the truncated
14 color shade value; and
- 15 (e) using a bit from said ramp value to select a color shade value of fewer than eight bits
16 that determines the color of each pixel.

- 1 2. (Unchanged) The method of claim 1, wherein said truncated bits in step (c) includes fewer
2 than the two least significant bits of said desired eight bit color shade value.

- 1 3. (Unchanged) The method of claim 2, wherein the truncated bits includes the three least
2 significant bits of said desired eight bit color shade value.

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1 4. ~~(Unchanged)~~ The method of claim 2, wherein the step of using a bit from said ramp value
2 to select a color shade value of fewer than eight bits (step e) includes using a value from a look-up
3 table to select said bit from said ramp value.

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1 5. ~~(Unchanged)~~ The method of claim 4, wherein each pixel has an x address and a y address
2 and said value from said look-up table is determined from the x address and the y address of the
3 pixel to be rendered.

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1 6. (Amended) A method for dithering pixel color in a graphics system that displays a group of
2 pixels in which primary pixel colors are represented by color shades having fewer than eight bits
3 comprising the steps of:

4 (a) generating an eight bit color shade value for each pixel representing a desired color for
5 each pixel;

6 (b) truncating the desired eight bit color shade value to produce a first color shade value
7 comprising fewer than eight bits;

8 (c) generating a FRAC value for each pixel representing the truncated bits of said desired
9 eight bit color shade value;

10 (d) producing a ramp value for each pixel using said FRAC value to select one from a

11 group of plurality of ramp values having different probabilities reflecting

12 proximity to the truncated color shade value, wherein said ramp value encodes a
13 discrepancy between the desired eight bit color shade value and the first color
14 shade value;

15 (e) producing an addend value for incrementing said first color shade value;

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- 16 (f) incrementing said first color shade value by said addend value to produce a second
17 color shade value; and
18 (g) selecting said first color shade value or said second color shade value to determine the
19 color of each pixel in said group of pixels.

N.E.

1 7. (Unchanged) The method of claim 6, wherein said step of producing a ramp value (step d)
2 includes producing a ramp value that includes a number of logic one values indicative of said
3 discrepancy between the desired eight bit color shade value and the first color shade value.

1 8. (Unchanged) The method of claim 6, wherein said step of selecting said first color shade
2 value or said second color shade value (step g) is performed in response to the state of a bit from
3 said ramp value.

1 9. (Unchanged) The method of claim 8, wherein each pixel has an x address and a y address
2 and said x address and said y address of a pixel to be rendered are used to obtain a value from a
3 look-up table, said look-up table value used to select said bit from said ramp value.

1 10. (Unchanged) The method of claim 6, wherein said step of incrementing said first color
2 shade (step f) produces an overflow signal if an overflow condition is present.

1 11. (Unchanged) The method of claim 10, wherein said step of selecting said first color shade
2 value or said second color shade value (step g) is performed in response to said overflow signal.

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12. (Amended) A graphics system that displays color shades based upon binary representation
2 having fewer than eight bits, wherein said graphics system initially receives a desired eight bit
3 binary representation for each color shade that is used by the graphics system to render pixels in a

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4 pixel grid, said desired eight bit binary representation including upper order bits and lower order
5 bits, comprising:
6 select fractional logic that receives the desired eight bit binary representation and wherein
7 said select fractional logic produces on its output lines the lower order bits of said
8 desired eight bit binary representation value;
9 a look-up table that produces a control value based upon an address of each pixel; and
10 ramp probability logic coupled to said select fractional logic and said look-up table, said
11 ramp probability logic producing a ramp value using output from said select
12 fractional logic to select one from a group of plurality of ramp values having
13 different probabilities reflecting proximity to a color shade having a binary
14 representation fewer than eight bits, said ramp value encoding [that encodes] a
15 discrepancy between said desired eight bit binary representation and said binary
16 representations having fewer than eight bits.

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1 13. (Unchanged) The graphics system of claim 12, further including an addend generator that
2 produces an addend value for incrementing said binary representations having fewer than eight bits.

1 14. (Unchanged) The graphics system of claim 13, further including add logic for producing
2 the sum of said addend value and said binary representations having fewer than eight bits.

1 15. (Unchanged) The graphics system of claim 14, further including a first multiplexer for
2 selecting a bit from said RAMP value, and wherein the bit selection is controlled by said control
3 value produced from said look-up table.

1 16. (Unchanged) The graphics system of claim 15, further including a second multiplexer to
2 which said binary representation having fewer than eight bits and said sum are provided as input
3 signals, and wherein said second multiplexer selects one of a said input signals, said input signal
4 selection controlled by a control signal and said control signal determined by said ramp value.

1 17. (Unchanged) The graphics system of claim 12, wherein said ramp value includes a number
2 of logic 1 values indicative of the discrepancy between said desired eight bit binary representation
3 and said binary representations having fewer than eight bits.

NE. 1 18. (Unchanged) The graphics system of claim 17, wherein said graphics system represents
2 color using five bits for red and five bits for blue.

1 19. (Unchanged) The graphics system of claim 18, wherein said graphics system represents
2 color using six bits for green.

1 20. (Unchanged) The graphics system of claim 15, wherein said add logic produces an
2 overflow output signal upon detection of an overflow condition.

1 21. (Unchanged) The graphics system of claim 20, wherein said control signal is also
2 determined by said overflow signal.